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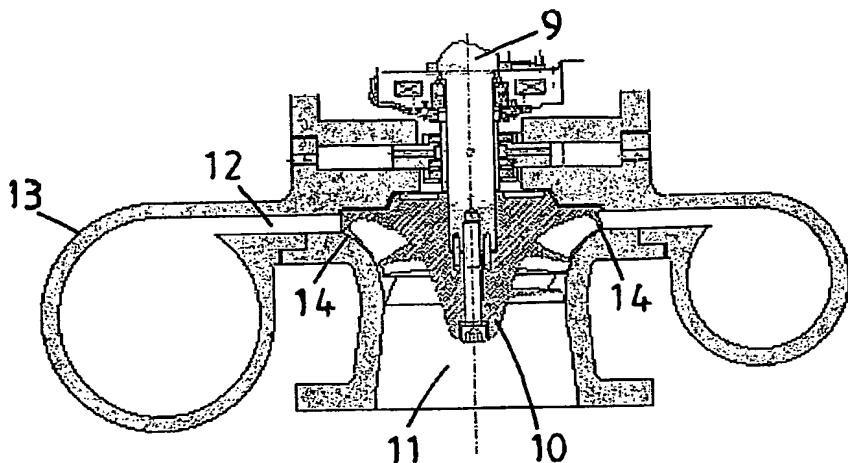
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(54) Title: COMBINATION OF COMPRESSOR AND PERMANENT MAGNET MOTOR FOR SEWAGE AERATION

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(57) Abstract: A sewage aeration turbocompressor for continuously delivering air at a relatively low pressure to a sewage sludge treatment plant. The compressor has a housing, an impeller (10) mounted on an impeller shaft within the housing, and an electric drive motor having an output shaft coupled to and rotating in synchronism with the impeller shaft (9). The housing defines an axial air inlet (4) extending to the impeller, a diffuser passageway (12) extending radially outwards from the impeller, and a volute (13) extending from the diffuser to an air outlet. The electric motor is a variable speed permanent magnetic motor controlled by an inverter and the diffuser is vaneless. High levels of efficiency are achieved over a wide range of impeller speeds, enabling the compressor to deliver large volumes of air across a wide range of delivery rates, by designing the system to deliver optimum efficiency at a relatively low pressure rise less than 1500 millibar.



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